

AMENDMENTS TO THE CLAIMS

1. (Currently Amended) A zoom lens system comprising a negative first lens group, a positive second lens group, and a negative third lens group, in this order from an object, [.]

wherein zooming is performed by moving said first through third lens groups in the optical axis direction,

wherein said positive second lens group includes a doublet and a positive lens element, in this order from said object,

wherein said negative first lens group consists of a negative single lens element having a concave surface facing toward said object, and

wherein said zoom lens system satisfies the following condition:

$$-1 < r1/fW < -0.3$$

wherein

r1 designates the radius of curvature of the object-side concave surface of said negative single lens element; and

fW designates the focal length of the entire zoom lens system at the short focal length extremity.

2. (Original) The zoom lens system according to claim 1, wherein said negative single lens element having said concave surface facing toward said object comprises a negative meniscus lens element.

3. (Original) The zoom lens system according to claim 1, wherein said zoom lens system satisfies the following condition:

$$50 < v_d$$

wherein

v_d designates the Abbe number of said negative single lens element.

4. (Original) The zoom lens system according to claim 1, wherein said zoom lens system satisfies the following condition:

$$1.7 < n_d$$

wherein

n_d designates the refractive index of the d-line of said negative single lens element.

5. (Original) The zoom lens system according to claim 1, wherein said zoom lens system satisfies the following condition:

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$$-5 < f_T/f_{lG} < -3$$

wherein

f_T designates the focal length of the entire zoom lens system at the long focal length extremity; and

f_{lG} designates the focal length of said negative single lens element.

6. (Original) The zoom lens system according to claim 1, wherein said zoom lens system satisfies the following condition:

$$0.05 < (d_{12W} - d_{12T}) / f_W < 0.15$$

wherein

d_{12W} designates the distance between said negative single lens element and said second lens group at the short focal length extremity; and

d_{12T} designates the distance between said negative single lens element and said second lens group at the long focal length extremity.

7. (Original) The zoom lens system according to claim 1, wherein said zoom lens system satisfies the following condition:

$$0.6 < y/f_W < 0.9$$

wherein

y designates the diagonal image height on a film surface.

8. (Currently Amended) The zoom lens system according to claim 1, wherein said zoom lens system satisfies the following condition:

$$3.5 < fT/fW \quad \text{---} \quad (7)$$

wherein

fT designates the focal length of the entire zoom lens system at the long focal length extremity; and

fW designates the focal length of the entire zoom lens system at the short focal length extremity.

9. (Original) The zoom lens system according to claim 1, wherein said positive second lens group comprises a lens element having at least one aspherical surface, and

wherein said aspherical surface satisfies the following condition:

$$-30 < \Delta IASP < -10$$

wherein

$\Delta IASP$ designates the amount of change of the spherical aberration coefficient due to the aspherical surface under the condition that the focal length at the short focal length extremity is converted to 1.0.

10. (Original) The zoom lens system according to claim 1, wherein said negative third lens group comprises a lens element having at least one aspherical surface, and wherein said aspherical surface satisfies the following condition:

$$0 < \Delta VASP < 0.4$$

wherein

$\Delta VASP$ designates the amount of change of the distortion coefficient due to the aspherical surface under the condition that the focal length at the short focal length extremity is converted to 1.0.

11. (New) A zoom lens system that focuses on objects at variable distances up to infinity, said zoom lens system comprising a negative first lens group, a positive second lens group, and a negative third lens group, in this order from an object,

wherein zooming is performed by moving said first through third lens groups in the optical axis direction,

wherein said negative first lens group consists of a negative single lens element having a concave surface facing toward said object, and

wherein said zoom lens system satisfies the following condition:

$$-1 < r1/fW < -0.3$$

wherein

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r_1 designates the radius of curvature of the object-side concave surface of said negative single lens element; and

f_W designates the focal length of the entire zoom lens system at the short focal length extremity.

12. (New) The zoom lens system according to claim 11, wherein said zoom lens system satisfies the following condition:

$$-5 < f_T/f_{LG} < -3$$

wherein

f_T designates the focal length of the entire zoom lens system at the long focal length extremity; and

f_{LG} designates the focal length of said negative single lens element.

13. (New) The zoom lens system according to claim 11, wherein said zoom lens system satisfies the following condition:

$$0.6 < y/f_W < 0.9$$

wherein

y designates the diagonal image height on a film surface.

14. (New) The zoom lens system according to claim 11, wherein said zoom lens system satisfies the following condition:

$$3.5 < f_T/f_W$$

wherein

f_T designates the focal length of the entire zoom lens system at the long focal length extremity; and

f_W designates the focal length of the entire zoom lens system at the short focal length extremity.

15. (New) A zoom lens system comprising a negative first lens group, a positive second lens group, and a negative third lens group, in this order from an object,

wherein zooming is performed by moving said first through third lens groups in the optical axis direction,

wherein said negative first lens group consists of a negative single lens element having a concave surface facing toward said object, and

wherein said zoom lens system satisfies the following conditions:

$$-1 < r_1/f_W < -0.3 \text{ and}$$

$$-5 < f_T/f_{1G} < -3$$

wherein

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r_1 designates the radius of curvature of the object-side concave surface of said negative single lens element;

f_W designates the focal length of the entire zoom lens system at the short focal length extremity;

f_T designates the focal length of the entire zoom lens system at the long focal length extremity; and

f_{1G} designates the focal length of said negative single lens element.

16. (New) The zoom lens system according to claim 15, wherein said negative single lens element having said concave surface facing toward said object comprises a negative meniscus lens element.

17. (New) The zoom lens system according to claim 15, wherein said zoom lens system satisfies the following condition:

$$50 < v_d$$

wherein

v_d designates the Abbe number of said negative single lens element.

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18. (New) The zoom lens system according to claim 15, wherein said zoom lens system satisfies the following condition:

$$1.7 < n_d$$

wherein

n_d designates the refractive index of the d-line of said negative single lens element.

19. (New) The zoom lens system according to claim 15, wherein said zoom lens system satisfies the following condition:

$$0.05 < (d_{12W} - d_{12T}) / f_W < 0.15$$

wherein

d_{12W} designates the distance between said negative single lens element and said second lens group at the short focal length extremity; and

d_{12T} designates the distance between said negative single lens element and said second lens group at the long focal length extremity.

20. (New) A zoom lens system comprising a negative first lens group, a positive second lens group, and a negative third lens group, in this order from an object,

wherein zooming is performed by moving said first through third lens groups in

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the optical axis direction.

wherein said negative first lens group consists of a negative single lens element having a concave surface facing toward said object, and

wherein said zoom lens system satisfies the following conditions:

$$-1 < r1/fW < -0.3 \text{ and}$$

$$0.6 < y/fW < 0.9$$

wherein

$r1$ designates the radius of curvature of the object-side concave surface of said negative single lens element;

fW designates the focal length of the entire zoom lens system at the short focal length extremity; and

y designates the diagonal image height on a film surface.

21. (New) The zoom lens system according to claim 20, wherein said negative single lens element having said concave surface facing toward said object comprises a negative meniscus lens element.

22. (New) The zoom lens system according to claim 20, wherein said zoom lens system satisfies the following condition:

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$$50 < v_d$$

wherein

v_d designates the Abbe number of said negative single lens element.

23. (New) The zoom lens system according to claim 20, wherein said zoom lens system satisfies the following condition:

$$1.7 < n_d$$

wherein

n_d designates the refractive index of the d-line of said negative single lens element.

24. (New) The zoom lens system according to claim 20, wherein said zoom lens system satisfies the following condition:

$$0.05 < (d_{12W} - d_{12T}) / f_W < 0.15$$

wherein

d_{12W} designates the distance between said negative single lens element and said second lens group at the short focal length extremity; and

d_{12T} designates the distance between said negative single lens element and said second lens group at the long focal length extremity.

25. (New) A zoom lens system comprising a negative first lens group, a positive second lens group, and a negative third lens group, in this order from an object,

wherein zooming is performed by moving said first through third lens groups in the optical axis direction,

wherein said negative first lens group consists of a negative single lens element having a concave surface facing toward said object, and

wherein said zoom lens system satisfies the following conditions:

$$-1 < r1/fW < -0.3 \text{ and}$$

$$3.5 < fT/fW$$

wherein

$r1$ designates the radius of curvature of the object-side concave surface of said negative single lens element;

fW designates the focal length of the entire zoom lens system at the short focal length extremity; and

fT designates the focal length of the entire zoom lens system at the long focal length extremity.

26. (New) The zoom lens system according to claim 25, wherein said negative single lens element having said concave surface facing toward said object comprises a

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negative meniscus lens element.

27. (New) The zoom lens system according to claim 25, wherein said zoom lens system satisfies the following condition:

$$50 \leq v_d$$

wherein

v_d designates the Abbe number of said negative single lens element.

28. (New) The zoom lens system according to claim 25, wherein said zoom lens system satisfies the following condition:

$$1.7 < n_d$$

wherein

n_d designates the refractive index of the d-line of said negative single lens element.

29. (New) The zoom lens system according to claim 25, wherein said zoom lens system satisfies the following condition:

$$0.05 < (d_{12W} - d_{12T}) / f_W < 0.15$$

wherein

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d12W designates the distance between said negative single lens element and said second lens group at the short focal length extremity; and

d12T designates the distance between said negative single lens element and said second lens group at the long focal length extremity.